

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
TYLER DIVISION**

CELL AND NETWORK SELECTION LLC,	§	
	§	Civil Action No. 6:13-cv-00403-
	§	LED-KNM
<i>Plaintiff,</i>	§	
	§	
v.	§	
AT&T MOBILITY LLC, <i>et al.</i> ,	§	Jury Trial Demanded
	§	
	§	
<i>Defendants.</i>	§	

**DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF**

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## **I. INTRODUCTION AND BACKGROUND**

### **A. Introduction**

The claims of the '551 patent include terms of art from cellular communications technology that were well understood at the time of the invention (*e.g.*, "paging channel," "pilot channel," and "synchronization"). The intrinsic record supports the Defendants' constructions because the '551 patent's specification and other intrinsic evidence use those terms of art consistent with how they were understood at the time of invention. Indeed, the '551 patent goes so far as to define one claim term in the specification with the exact same language used by the contemporaneous IS-95 CDMA cellular communication standard.<sup>1</sup>

CNS proposes constructions that would strip those commonly understood meanings from the claimed terms of art. As a result, CNS's constructions would impermissibly broaden many of the claim terms beyond what was described in the specification or would have been understood by a person of ordinary skill.

In addition, for several terms CNS relies on the phrase "plain and ordinary meaning." But CNS provides no meaningful explanation of the terms' plain and ordinary meanings. Instead, CNS relies on irrelevant extrinsic evidence (*see* "strength" below), evades the claim language itself (*see* "cellular communication system" and "threshold value" below), and even offers a construction that would place the claims within the admitted prior art in the '551 patent (*see* first "judging" limitation below). For these reasons and as further explained below, CNS's proposed constructions should be rejected.

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<sup>1</sup> CDMA stands for "code division multiple access." At the time of the alleged invention, CDMA was embodied in the cellular communications standards, such as IS-95 and IS-98. *See* Ex. 1, Viterbi, *CDMA Principles of Spread Spectrum Communication*, at p. xviii (1995).

## **B. Background**

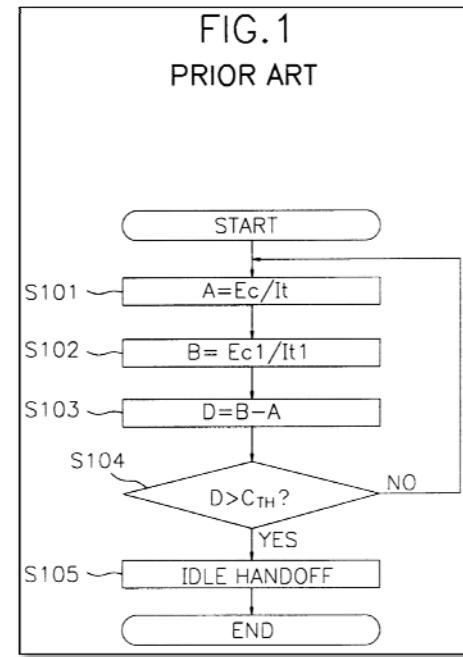
The '551 patent is directed to methods for controlling idle handoffs in a cellular communication system. '551 patent, Abstract. The '551 patent issued on February 27, 2001 from an application filed on July 21, 1998, and claims priority to a Korean application filed on July 22, 1997. The patent includes 15 method claims directed to controlling an idle handoff.

The '551 patent has three groups of claims, each directed to a different aspect of when to conduct an idle handoff: (1) “variable threshold” claims (claims 1-7), (2) “timer” claims (claims 8-12), and (3) “counter” claims (claims 13-15). These three groups respectively correspond to the three labeled embodiments in '551 patent’s specification. *See* '551 patent, 4:62-6:34 (“EMBODIMENT 1” directed to variable threshold features); *id.* at 6:35-7:58 (“EMBODIMENT 2” directed to timer features); *id.* at 7:59-9:13 (“EMBODIMENT 3” directed to counter features). Although CNS asserts claims from only the “timer” and “counter” groups—claims 8, 10, and 12-15—Defendants briefly describe each group below for context.

The three groups of claims are characterized by the way they differ from what the '551 patent admits to be prior art. Under the heading “Prior Art,” the '551 patent explains that when a mobile station moves from one cell to another, the mobile station’s RF communication link with the first cell must be transferred to the second cell. '551 patent, 1:11-14. These “handoffs” that occur in an idle mode (“idle handoffs”) are the focus of the '551 patent. *Id.* at 1:14-20; *see also id.* at 1:7-9; Abstract.

The patent provides context for its purported invention by describing this prior art idle handoff technique in Fig. 1. As the patent explains, in CDMA cellular systems, base stations transmit pilot channels on CDMA frequencies. *Id.* at 1:38-44. The mobile station first searches for a pilot channel having the strongest strength from those base stations and selects that pilot channel to be the active base station, measuring a strength (A) of that pilot channel. *Id.*

The prior art technique then goes through the series of steps shown in Fig. 1, searching through a series of neighbor base station pilot channels and picking a neighbor base station whose pilot signal is stronger than the current active base station by a predetermined threshold. Beginning in Step 101, the mobile station measures the strength (Ec/It) of the current base station's pilot channel. *Id.* at 1:38-45. In step S102, the mobile station searches for and measures the strength of a second pilot channel. *Id.* at 1:46-50. Then, in step S103 the mobile station subtracts the current active pilot channel strength from the second pilot channel strength. *Id.* at 1:50-55. In step S104, the mobile station determines whether that strength difference (D) is greater than a threshold value ( $C_{TH}$ ). *Id.* at 1:56-58. If so, the mobile station starts an idle handoff at step S105. *Id.* at 1:58-62. Otherwise, the mobile station circles back to the start of the routine looking for a pilot channel from a next available base station. *Id.* at 1:65-2:2.



The '551 patent's purported improvements to this prior art technique consist of deciding when to perform an idle handoff.

The "variable threshold" group of claims differs from this admitted prior art technique only to the extent it uses a **variable threshold value** ( $V_{TH}(N)$ ) rather than the "fixed" threshold ( $C_{TH}$ ) of the prior art. *Id.* at 5:11-15; Fig. 3 (elements S304, S315). The variable threshold embodiment is described under the heading "EMBODIMENT 1." *Id.* at 4:62.

The "timer" group of claims differs from the admitted prior art technique only to the extent it performs an idle handoff when the strength difference exceeds a threshold for at least a

certain amount of time—or in the '551 patent's parlance, by a *predetermined time interval*. This embodiment uses a “timer 208 to count a time interval TI in which the state that the strength difference SD(N) is greater than the threshold value  $F_{TH}$  lasts (step S419).” *Id.* at 7:40-45; Fig. 4 (element S419). “In step S420, the controller 204 judges whether or not the time interval TI counted in step S419 is greater than a predetermined time interval  $T_{TH}$ .” *Id.* at 7:46-48; Fig. 4 (element S420). If the strength difference SD(N) exceeds the threshold  $F_{TH}$  for the predetermined time interval  $T_{TH}$ , a handoff occurs. *Id.* at 7:48-53; Fig. 4 (element S421). The timer embodiment is described under the heading “EMBODIMENT 2.” *Id.* at 6:35.

The “counter” group of claims differs from the admitted prior art technique only to the extent it performs an idle handoff when the strength difference exceeds a threshold for at least a certain count, or a *predetermined number of times*. This embodiment uses a “counter 210 to count the performance number C of step S515 (step S519),” where step S515 involves determining whether a strength difference SD(N) exceeds a threshold  $G_{TH}$ . *Id.* at 8:64-9:1, 8:41-43; Fig. 5 (elements S515, S519). “[W]hen the counting number C is greater than a predetermined number  $C_{TH}$ ,” a handoff occurs. *Id.* at 9:4-8; Fig. 5 (elements S520, S521). The counter embodiment is described under the heading “EMBODIMENT 3.” *Id.* at 7:59.

## II. DISPUTED CLAIM TERMS

### A. “paging channel”

Claim Term	Defendants' Proposed Construction	CNS's Proposed Construction
paging channel (claims 8, 13)	an encoded, interleaved, spread, and modulated spread spectrum signal used to transmit system overhead information and mobile station specific messages	a channel carrying signals that is used by the base station to transmit system information to a mobile device

Defendants' construction captures what a "paging channel" actually is, consistent with the definition in the specification and confirmed by the CDMA cellular communication standard used by those of ordinary skill in the art at the time of the invention. CNS's construction would effectively read the term "paging channel" out of the claim and would cover *any* channel that otherwise met the claim language. CNS's construction also uses a term—"system information"—that is never used in the '551 patent, but conveniently appears in documents on which CNS bases its theory of infringement. *See* Ex. 2, CNS's P.R. 3-1 Claim Chart at 36-37.

The claims themselves do not define what a paging channel—as opposed to some other channel or signal—actually is. While the claims make clear that to fall within their scope a paging channel must have a "neighbor list," CNS turns that requirement on its head, arguing that if a channel has a "neighbor list" (or other "system information"), then it is a "paging channel." That logic is no more correct than saying "a car having tires" means "if it has tires, then it is a car." True, to satisfy the claim, a paging channel must have a neighbor list. But that does not mean, as CNS argues, that "having a neighbor list" is the "defining characteristic" of a paging channel. *See* CNS Br. at 6. Under CNS's construction, the claims would be met by "*any* channel having a neighbor list," but the claims require a "*paging* channel having a neighbor list." CNS gives no meaning to the term "paging" and reads the term out of the claim. *See Felix v. Am. Honda Motor Co., Inc.*, 562 F.3d 1167, 1178 (Fed. Cir. 2009) (a construction that renders a claim term superfluous is improper).

So what is a paging channel? The inventors defined the term "paging channel" in the specification:

30 and stores the neighbor list(K) in memory 206. The paging  
 channel is an encoded, interleaved, spread, and modulated  
 spread spectrum signal that is used by mobile stations  
 operating within the coverage area of the base station. The  
 base station uses the paging channel to transmit system  
 35 overhead information and mobile station specific messages.

'551 patent at 4:30-35 (emphasis added). Here, the inventors provided a definition and acted as their own lexicographers for the claim term “paging channel.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc) (“the specification ‘acts as a dictionary when it expressly defines terms used in the claims. . . .’”) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Because “paging channel” is a defined term, a proper construction must include this definition—that is “an encoded, interleaved, spread, and modulated spread spectrum signal.”

The specification’s definition further explains the types of messages the “paging channel” must carry to differentiate the “paging channel” from other channels in the cellular system. A proper construction must reflect the requirement that the “paging channel” carries “mobile station specific messages,” as Defendants propose. '551 patent at 4:33-35.

Other intrinsic evidence, such as the prior art cited on the face of the '551 patent, further explains the concept of a paging channel and its “mobile station specific messages” described in the '551 patent’s specification. *See V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005) (prior art cited on the face of patent is intrinsic evidence). For example, cited U.S. Patent No. 5,889,768 states that the paging channel is used to send “pages” to the mobile station, and the “page” informs the specific mobile station about an incoming call:

the base station is carried out over a reverse channel. Under the Interim Standard IS-95-A, which has been adopted by the Telecommunications Industry Association for implementing CDMA, pages are sent from the base station to a mobile station over a forward channel referred to as a paging channel. The page informs the mobile station that a call has been placed to it. 20

Ex. 3, U.S. Patent No. 5,889,768 at 1:18-24 (filed Aug. 30, 1996). This would be a “mobile station specific message.”

Both the inventors’ definition and Defendants’ construction of “paging channel” are also confirmed by the extrinsic evidence. At the time of the alleged invention, the “paging channel” was a particular, well-defined channel in cellular systems. The inventors of the ’551 patent wrote a 1998 article about improvements to a CDMA system that included a statement regarding pages and paging channels: “paging channels are used to page mobiles. . . .” Ex. 4, Dongwoo Kim and Kyunam Kim, *Improving Idle Handoff in CDMA Mobile Systems*, IEEE COMMUNICATIONS LETTERS, Vol. 2, No. 11 (Nov. 1998) at 304. Further, a paging channel carrying “mobile station specific messages” is consistent with the contemporaneous IS-95 standard for CDMA cellular systems that defined “paging” as seeking the mobile station when there is an incoming call:

**Paging.** The act of seeking a mobile station when a call has been placed to that mobile station.

Ex. 5, TIA/EIA Interim Standard, TIA/EIA/IS-95 (“IS-95 Standard”) at page 1-10 (Bates No. DEFINV0001111) (July 1993).

The ’551 patent’s definition of “paging channel” is also exactly the same as the definition provided in the IS-95 standard—the CDMA standard at the time of the invention, which shows how those of skill in the art understood the term:

**7.1.3.4 Paging Channel**

The Paging Channel is an encoded, interleaved, spread, and modulated spread spectrum signal that is used by mobile stations operating within the coverage area of the base station. The base station uses Paging Channel to transmit system overhead information and mobile station specific messages.

Ex. 5, IS-95 Standard at page 7-25 (Bates No. DEFINV0001572).

Therefore, the paging channel is not just a channel that transmits “system information,” as proposed by CNS, but is instead the inventor-defined encoded, interleaved, spread, and modulated spread spectrum signal that carries mobile station specific messages (like *paging* messages to alert the handset of an incoming call), which is reflected in Defendants’ construction. ’551 patent at 4:33-35.

In contrast, CNS’s construction is not limited in scope and ignores the inventors’ definition. The only apparent basis for CNS’s construction, including its requirement of “system information,” is found not in the relevant intrinsic or extrinsic evidence, but instead in the documents underlying CNS’s infringement theory. *See* Ex. 2, CNS’s P.R. 3-1 Claim Chart at 36-37.

Therefore, CNS’s construction must fail because it disregards the well-understood meaning of “paging channel” as of the alleged invention date, a meaning specifically adopted by the inventors.

## B. “strength”

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
strength (claims 8, 10, 12-15)	a ratio of pilot energy per chip to total spectral density	Plain and ordinary meaning, or “a mathematical representation accounting for signal energy”

The term “strength”<sup>2</sup> has no single plain and ordinary meaning. In the context of electronic communications, “strength” can mean many different things. When such ambiguity exists, the specification “is the single best guide to the meaning of a disputed term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (quoted source omitted). CNS contends that one would be “readily familiar” with the term’s meaning, but offers a construction based entirely on an irrelevant WiFi standard and wholly disregards the ’551 patent’s specification. CNS Br. at 8-9.

With perfect consistency, the ’551 patent’s specification describes “strength” as a ratio of pilot energy per chip to total spectral density. In the Background of the Invention section, the specification introduces and states what “strength” means in the ’551 patent: “That is, the ***ratios of received pilot energy per chip, Ec, to total received spectral density*** (noise and signals), It.” ’551 patent, 1:44-46 (emphasis added). The specification repeats this description of “strength” for each of the three embodiments described in the ’551 patent. *See id.* at 5:7-9 (“[T]hat is, the ***ratios of received pilot energy per chip, Ec, to total received spectral density*** (noise and signals), It.”); 6:50-52 (“[T]hat is, the ***ratios of received pilot energy per chip, Ec, to total received spectral density*** (noise and signals), It.”); 8:8-10 (“[T]hat is, the ***ratios of received pilot energy per chip, Ec, to total received spectral density*** (noise and signals), It.”) (emphases added). No other form of “strength” is described or suggested. Accordingly, Defendants propose a construction based on the specification’s repeated, consistent, and exclusive description of strength as a ratio of pilot energy per chip to total spectral density. *In re Abbott Diabetes Care Inc.*, 696 F.3d 1142, 1150 (Fed. Cir. 2012); *see also Saffran v. Johnson &*

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<sup>2</sup> Defendants’ propose a construction of “strength” to apply in each place the term appears in asserted claims 8, 10, and 12-15.

*Johnson*, 712 F.3d 549, 560 (Fed. Cir. 2013) (adopting construction based on “[e]xtensive, consistent usage in the specification” that “would accord with *every* embodiment and description presented in the [asserted] patent, not to mention the prosecution history.”) (emphasis in original).

Finding no support in the intrinsic record for its construction, CNS draws attention to a Wi-Fi standard. CNS Br. at 8-9 (citing Ex. 3).<sup>3</sup> CNS does not attempt to explain why a Wi-Fi standard is relevant to the cellular communications technology described in the '551 patent, or why the “Semantics of the service primitive” feature it cites provides a proper definition of “strength” as recited in claims 8, 10, and 12-15. CNS’s Exhibit 3 is irrelevant extrinsic evidence, and its claim construction based on that exhibit should be rejected. *Phillips*, 415 F.3d at 1317-18.

### C. “pilot channel”

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
pilot channel (claims 8, 13)	“ <i>pilot channel</i> ”: channel which carries pilot signal  “ <i>pilot signal</i> ”: signal with a defined spreading code used by the mobile station to acquire timing, phase reference, and signal strength	a channel carrying signals transmitted from a base station that is referenced when determining strength

As with the term “paging channel,” a “pilot channel” is a specific, well-known channel in a cellular system. “Pilot channel” is a term of art that would have been known to a person of ordinary skill at the time of the alleged invention. The parties dispute two issues: (1) whether the

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<sup>3</sup> CNS cites “Exhibit 2,” but apparently intended to cite Exhibit 3. CNS also cites the wrong version of the standard, since it cites “IEEE Std. 802.11-1997” but the document in Exhibit 3 is titled “ANSI/IEEE Std 802.11, 1999 Edition.”). In any event, CNS did not cite any version of Exhibit 3 in the parties’ P.R. 3-4 statement. *See* Dkt. 69 at 9.

signal on the “pilot channel” must have a “defined spreading code,” and (2) how the “pilot channel” must be used.

Starting with the claim language, the ’551 patent identifies how the pilot channel must be used (its “strength” must be measured). But neither the claims nor the specification explain what a pilot channel actually is.

The ’551 patent specification does, however, make explicit the system in which a pilot channel is found—CDMA. The specification repeatedly references a “code division multiple access” or “CDMA” cellular system, and makes no mention of any other type of cellular system. *See ’551 patent at 4:18-23 (“Controller 204 searches for a pilot channel. . . on a current CDMA frequency assignment. . . .”)* (emphasis added);<sup>4</sup> *see also ’551 patent at 1:24-28, 1:38-43, 4:66-5:5, 6:43-46, 7:67-8:5.* These CDMA descriptions are used in both the “Background of the Invention” and the “Detailed Description of the Preferred Embodiment” sections. Further, the specification’s definition of “paging channel,” as discussed above, matches the IS-95 CDMA standard verbatim. Defendants’ construction, therefore, appropriately captures the CDMA nature of the recited “pilot channel.” *See, e.g., Vizio, Inc. v. ITC*, 605 F.3d 1330, 1336-37 (Fed. Cir. 2010) (construing “channel map information” in accordance with the MPEG-2 standard, given that the patent did not define the term but referred to the standard in several places and the standard was used in the industry as of the patent’s filing date). Other intrinsic evidence also indicates that the claims pertain to a “pilot channel” in a CDMA system. For example, U.S.

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<sup>4</sup> At the time of the filing of the application leading to the ’551 patent, there were specific frequencies assigned to CDMA. Therefore, one of ordinary skill in the art would have understood a “CDMA frequency assignment” as used in the ’551 patent to be an assignment of bandwidth specific to CDMA signals. *See Ex. 5, IS-95 Standard at page 1-3 (Bates no. DEFINV0001104)* (defining “CDMA frequency assignment” as “A 1.23 MHz segment of spectrum centered on one of the 30 kHz channels of the existing analog system.”); *see also Ex. 6, Garg, Wireless and Personal Communications Systems*, Prentice Hall, 1996, Table 2.2, p. 17.

Patent No. 5,889,768 (the “768 patent”) is cited on the face of the ’551 patent, making it intrinsic evidence. *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005). The ’768 patent explains that a pilot channel has a “spreading code,” which is define[d]” by the IS-95 CDMA standard:

gest channel signal. In the CDMA system according to 45  
IS-95-A, each base station continuously transmits a pilot  
channel signal. The pilot signal transmitted by each base  
station has the same spreading code but with a different code  
phase offset. Phase offset allows the pilot signals to be  
distinguished from one another, which in turn allows the 50  
base stations to be distinguished. IS-95 defines the spreading  
code as a PN sequence having a period  $2^{15}$  chips, and phase  
offset as a multiple of 64 chips relative a zero offset pilot PN  
sequence.

Ex. 3, U.S. Patent No. 5,889,768 at 1:45-54 (filed Aug. 30, 1996). Further, this reference explains that each pilot signal from each base station must have a different “phase offset” in order to distinguish from one another. These concepts are reflected in Defendants’ construction and are ignored in CNS’s construction.

The extrinsic evidence confirms that Defendants’ construction properly reflects how a person of ordinary skill would have understood the term “pilot channel.” *Phillips*, 415 F.3d at 1314 (“[T]he court looks to those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean,” which, in addition to the claims and specification, include “the prosecution history, and extrinsic evidence concerning relevant scientific principles, ***the meaning of technical terms***, and the state of the art.”) (internal citations removed) (emphasis added). The IS-95 standard was the original CDMA standard and was in practice at the time of the purported invention. The inventors of the ’551 patent cited the IS-95 standard in an article written contemporaneously with the filing of the ’551 patent application about improvements to idle handoff methods: “Our study relies on the cellular

system based on IS-95. . . .” Ex. 4, Dongwoo Kim and Kyunam Kim, *Improving Idle Handoff in CDMA Mobile Systems*, IEEE COMMUNICATIONS LETTERS, Vol. 2, No. 11 (Nov. 1998) at 304.

The Korean Patent Office also cited the IS-95 standard as prior art against the foreign counterpart from which the '551 patent claims priority. Ex. 7, Korean Office Action. The IS-95 standard describes the CDMA system known at the time of the alleged invention, and a person of ordinary skill would have understood the term “pilot channel” as defined in the IS-95 standard itself:

**Pilot Channel.** An unmodulated, direct-sequence spread spectrum signal transmitted continuously by each CDMA base station. The Pilot Channel allows a mobile station to acquire the timing of the Forward CDMA Channel, provides a phase reference for coherent demodulation, and provides a means for signal strength comparisons between base stations for determining when to handoff.

Ex. 5, IS-95 Standard at page 1-11 (Bates no. DEFINV0001112). *See Key Pharmaceuticals v. Hercon Labs. Corp.*, 161 F.3d 709, 717-18 (Fed. Cir. 1998) (affirming trial court’s reliance on extrinsic standard where no intrinsic evidence was available for use in claim construction); *see also Vizio, Inc. v. ITC*, 605 F.3d 1330, 1336-37 (Fed. Cir. 2010).

This IS-95 definition is consistent with the intrinsic evidence, such as the '768 patent discussed above. Defendants’ construction simply shortens this definition so that it is more understandable for a jury, but nonetheless captures the important concepts. A “direct-sequence spread signal” is synonymous with a “signal with a defined spreading code” as reflected in Defendants’ construction and described in the '768 patent. The IS-95 standard and the '768 patent also both describe the “phase” attributes of the pilot channel. And as will be discussed in the section below regarding “synchronization,” a person of ordinary skill would understand a pilot channel to be used to acquire phase and timing information, not just signal strength information, so that the cellular system would remain properly synchronized.

As it did with its construction of “paging channel,” CNS turns the claim language on its head, arguing that because the claim requires that the “pilot channel” strength be measured, then a channel whose strength is measured is a “pilot channel.” CNS’s construction reads out the concept of a *pilot* channel and instead seeks to encompass *any* channel whose strength is measured. CNS’s construction should also be rejected because the signal “strength” limitation it involves is already found elsewhere in the claim and impermissibly broadens the term “pilot channel” to read on *any* channel that otherwise meets the claim. *See ThinkOptics, Inc. v. Nintendo of Am.*, Case No. 6:11-cv-455, 2013 WL 3818414, at \*6 (E.D. Tex. July 22, 2013) (rejecting proposed construction that included requirements found elsewhere in the claim language); *see also Depomed, Inc. v. Sun Pharma Global FZW*, C.A. No. 11-3553, 2012 WL 3201962, at \*5 (D. N.J. Aug. 3, 2012) (rejecting proposed construction where party admitted that the construction included limitations expressly required by the claims). Defendants’ construction properly captures the actual meaning of “pilot channel,” whereas CNS’s construction is impermissibly broad, focusing on *any* channel whose strength is measured.

**D. “a plurality of neighbor base stations in synchronization with the first pilot channel”**

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
a plurality of neighbor base stations in synchronization with the first pilot channel (claims 8, 13)	pilot channels of neighbor base stations having the same time, phase, and frequency of the pilot channel of the serving base station	Plain and ordinary meaning

With the term “synchronization,” the inventors of the ’551 patent again used a term of art, but in this instance did not provide any explicit context in the claims or the specification. Therefore, the Court must look to extrinsic evidence for a proper construction.

The term synchronization should be construed consistently with the IS-95 CDMA standard. In fact, the written description of the '551 patent consistently discusses “synchronization” in a manner explicitly linked to “CDMA.” *See, e.g.*, '551 patent at 4:18-30 (“Controller 204 searches for a pilot channel transmitted from one of the plurality of base stations 101, 102, 103 . . . having the strongest strength on a current **CDMA** frequency assignment . . .” and “[c]ontroller 204 searches for a paging channel on which a neighbor list(K) . . . of the active base station 101 in **synchronization** with the pilot channel transmitted from the active base station 101. . . .”); *see also id.* at 4:66-5:5, 5:42-47, 6:43-47, 6:55-60, 7:67-8:5, 8:13-18. As above with “paging channel” and “pilot channel,” the proper construction is found in the evidence describing CDMA systems, such as the IS-95 standard and the Viterbi textbook describing CDMA systems. The IS-95 standard describes synchronization in terms of time, frequency, and phase:

**7.1.5 Synchronization, Timing, and Phase**

**7.1.5.1 Timing Reference Source**

Each base station shall use a **time** base reference from which all **time** critical CDMA transmission components, including **pilot** PN sequences, frames, and Walsh functions, shall be derived. The **time** base reference shall be **time-aligned** to **CDMA System Time**, as described in 1.2. Reliable external means should be provided at each base station to **synchronize** each base station's **time** base reference to **CDMA System Time**. Each base station should use a **frequency** reference of sufficient accuracy to maintain **time** alignment to **CDMA System Time**. In the event that the external source of System Time is lost,<sup>9</sup> the

Ex. 5, IS-95 Standard at 7.1.5, page 7-39 (Bates No. DEFINV0001586). One of ordinary skill in the art would have understood the term “synchronization” as it was referenced in the IS-95 CDMA standard. Similarly, a well-known CDMA textbook describes a CDMA system having similar synchronization characteristics: “The performance analysis of the spread spectrum modulation system . . . requires **the receiver carrier's phase and frequency and its chip timing**

*to be perfectly synchronized to that of the transmitted signal. . . .*" Ex. 1, Viterbi, *CDMA*

*Principles of Spread Spectrum Communication*, at 39 (1995) (emphasis added).

CNS also argues that Defendants' construction is wrong in that it should be the paging channel that is synchronized with the first pilot channel—not the pilot channels of the neighbor base stations synchronized with the first pilot channel. CNS thus asks the Court to ignore the claim language as written: "a plurality of neighbor base stations in synchronization with the first pilot channel." The passages cited by CNS are worded differently and do nothing to help clarify this claim limitation, much less support CNS's argument. CNS Br. at 10-11. CNS's argument is not only contrary to the claim language and unsupported by the specification—it also conflicts with how synchronization was used in the CDMA system described in the '551 patent. As the IS-95 standard explains, means are "provided at each base station to synchronize each base station's time base reference to CDMA System Time," and the "time base reference" is used for "all time critical CDMA transmissions, including *pilot PN sequences*." Ex. 5, IS-95 at 7.1.5, page 7-39 (Bates No. DEFINV0001586) (emphasis added). According to the standard, the "pilot channel" is "used for synchronization by a mobile station operating within the coverage area of the base station." *Id.* at 7.1.3.2, page 7-22 (Bates No. DEFINV0001569). Indeed, the IS-95 standard's discussion of synchronization makes repeated reference to the "pilot channel" of each base station. *Id.* at 7.1.3.3 - 7.1.3.3.10, pages 7-24-25 (Bates Nos. DEFINV0001571-72). CNS's attempt to disassociate the pilot channel from the synchronization function recited in claim 8 is therefore atextual in view of the claim language, unsupported by the specification, and contrary to the underlying CDMA framework.

**E. “judging whether step (E) is performed by a predetermined number”**

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
judging whether step (E) is performed by a predetermined number (claim 13)	counting the number of times the strength difference is determined to be above the threshold value and determining whether that count exceeds a predetermined number	Plain and ordinary meaning

For this term, the parties dispute two issues: (1) whether this limitation requires “counting” and (2) whether step (E) is satisfied when the count is *equal to* or when it *exceeds* the “predetermined number.”

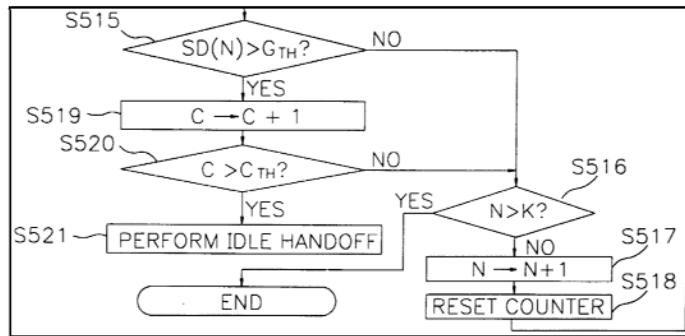
Defendants propose a construction that aligns with the intrinsic record and avoids the admitted prior art in the ’551 patent. CNS proposes no construction, and offers no guidance as to the “plain and ordinary meaning” of the recited “judging” operation. Given the parties’ dispute about the meaning of this claim term, however, “plain and ordinary meaning” is not an acceptable construction. *See O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008) (“A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on a term’s ‘ordinary’ meaning does not resolve the parties’ dispute.”).

As discussed above, claim 13 corresponds to Embodiment 3 in the ’551 patent’s specification. Embodiment 3 describes using a counter to determine whether a strength difference exceeds a threshold value a predetermined number of times.

[W]hen the strength difference SD(N) is greater than the threshold value  $G_{TH}$ , the controller 204 controls the **counter** 210 to count the performance number C of step S515(step S519). In step S520, the controller 204 judges whether or not the **counting** number C by the **counting** operation in step S519 is greater than a predetermined number  $C_{TH}$ .

'551 patent, 8:65-9:3 (emphasis added).

This counting feature is illustrated in Figure 5 (reproduced in pertinent part below), which corresponds to Embodiment 3 and claim 13.



Consistent with the '551 patent's disclosure of the counting operation in Embodiment 3, Defendants' construction includes "counting." Indeed, a "counter" or "counting" is integral to Embodiment 3 and claim 13. The '551 patent discloses no other way of "judging whether step (E) is performed by a predetermined number." As a practical matter, it is hard to imagine how the alleged invention of claim 13 and Embodiment 3 could determine that the "predetermined number" is reached without a form of counting. While CNS contends that claim 13 "makes no mention of 'counting,'" CNS fails to explain how "judging whether step (E) is performed by a predetermined number" could be performed without a counting operation, consistent with the '551 patent's disclosure. CNS Br. at 11. In fact, even CNS's own description of the '551 patent involves a "count." *See id.* at 3 ("Specifically, if a pilot signal from one base station is greater than pilot signals from others by a sufficient amount (or 'threshold') and for a sufficient period of time or **count**, only then does a handoff occur.") (emphasis added).

CNS also attacks Defendants' construction because it involves a count that "exceeds" a predetermined number rather than is "equal" to a predetermined number. *Id.* at 11. The underlying dispute between the parties is whether "judging whether step (E) is performed by a

“predetermined number” in claim 13 can be satisfied if the strength difference is determined to exceed the threshold value just a *single* time. CNS desires for claim 13 to capture a scenario where the “predetermined number” is *one* and step (E) is satisfied *once*. Such a claim construction, however, would encompass the admitted prior art in the ’551 patent and cannot be adopted. Precisely such an embodiment is described in the ’551 patent under the heading “Prior Art.” *See* ’551 patent, 1:56-62 (performing handoff when threshold value  $C_{TH}$  is exceeded once). The same embodiment is illustrated in Figure 1, labeled “PRIOR ART.” *Id.* at Fig. 1 (element S104).

Defendants’ construction excludes the admitted prior art where exceeding the threshold *once* triggers a handoff, because it requires determining whether the “count *exceeds* a predetermined number.”<sup>5</sup> CNS’s argument, by contrast, would allow for a handoff when the threshold is exceeded once (*i.e.*, “step (E) is satisfied *equal* to a predetermined number” and the predetermined number is “1”). CNS Br. at 11. CNS’s argument would plunge claim 13 into the admitted prior art.

CNS’s argument is also inconsistent with the specification, which discloses that a handoff occurs “when the counting number C is *greater* than a predetermined number  $C_{TH}$ .” ’551 patent, 9:4-8 (emphasis added); *see also id.* at 9:1-3, Fig. 5 (element S520). By contrast, when “the counting number C is *smaller than or equal to* a predetermined number  $C_{TH}$ , the routine goes to step S516” and no handoff occurs. *Id.* at 9:11-13 (emphasis added); *see also id.* at Fig. 5 (elements S516, S517, S518).

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<sup>5</sup> The “predetermined number” cannot be zero, because in that case the “strength difference” would never have exceeded the “threshold value” and no handoff would be possible. *See* ’551 patent at 8:41-48, 8:64-9:8, Fig. 5 (elements S515, S520, S521).

Because CNS's argument conflicts with the intrinsic record and would place claim 13 within the admitted prior art in the '551 patent, it should be rejected. *Harris Corp. v. IXYS Corp.*, 114 F.3d 1149, 1153 (Fed. Cir. 1997) ("[C]laims should be read in a way that avoids ensnaring prior art if it is possible to do so").

**F. "judging whether a counting number by the counting operation of (F-1) is larger than the predetermined number"**

Claim Term	Defendants' Proposed Construction	CNS's Proposed Construction
judging whether a counting number by the counting operation of (F-1) is larger than the predetermined number (claim 15)	determining whether the count exceeds a predetermined number	Plain and ordinary meaning

For this claim term, CNS argues that Defendants' construction merely paraphrases the claim term and is therefore unnecessary. Defendants' construction for this term, however, is driven by the intrinsic record and is necessary to clarify the meaning of the term.

As discussed above in Section 2(E), Embodiment 3 corresponds to claims 13-15 and involves a counter that determines the number of times a strength difference is greater than a threshold value. Consistent with this disclosure in the '551 patent, "judging whether a counting number by the counting operation of (F-1) is larger than the predetermined number" should be construed to mean "determining whether the count exceeds a predetermined number" as Defendants propose.

CNS does not seriously dispute Defendants' construction. CNS asserts that "Defendants improperly construe claims 15 and 13 to be coextensive." CNS Br. at 12. This is incorrect. As explained below in Section II(J), claim 15 is indefinite under 35 U.S.C. § 112, ¶ 2. The meaning and scope of claim 15 are not reasonably comprehensible. CNS also contends that Defendants "merely paraphrase the claim language." *Id.* To the contrary, Defendants' construction clarifies

what the recitations of “counting number” and “counting operation” mean in claim 15.

Defendants’ construction refers to “the count”—*i.e.*, whatever is being counted in step (F-1).

Thus, Defendants’ construction appropriately clarifies the meaning of step (F-2).

#### G. “cellular communication system”

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
cellular communication system (claim 8)	a system for cellular communication that includes a mobile station and a plurality of base stations	Plain and ordinary meaning

All of the relevant intrinsic evidence supports Defendants’ construction of “cellular communication system,” including the language of claim 8 and the specification. CNS contends that the term has a plain and ordinary meaning, but fails to state what the meaning is, which does not help resolve the parties’ dispute over a proper construction. *O2 Micro*, 521 F.3d at 1361.

The language of claim 8 requires that the recited “cellular communication system” includes a “plurality of base stations” and a “plurality of neighbor base stations.” ’551 patent, 10:20-21, 24-25, 28-29. Accordingly, Defendants’ construction includes “a plurality of base stations.” Defendants’ construction also includes “a mobile station,” because an “idle handoff” as recited in claim 8 and described in the ’551 patent does not occur between base stations—it occurs between base stations and a mobile station. *See id.* at 1:11-20, 28-31, 58-62.

The specification is also perfectly consistent with Defendants’ construction. According to the specification, Fig. 2 depicts “a **cellular communication system** in order to illustrate an idle handoff controlling method **according to the present invention.**” *Id.* at 3:53-56 (emphases added); *see also id.* at 4:9-11. As shown in Fig. 2, “[t]he cellular communication system includes a **mobile station** 20 and a **plurality of base stations** 101, 102, 103, . . . 10(N-1), and 10N. . . .” *Id.* at 4:11-13 (emphases added).

Without explanation, CNS asserts that “the term ‘cellular communication system’ is not limiting since it appears only in the preamble.” CNS Br. at 12. This is incorrect. Terms in a claim’s preamble may be limiting where the preamble “recites essential structure or steps” or features constituting “the essence or a fundamental characteristic of the claimed invention.” *Vizio, Inc. v. ITC*, 605 F.3d 1330, 1340 (Fed. Cir. 2010). In claim 8, the recited “cellular communication system” connotes essential structure—namely the plurality of base stations and the mobile station that are required for the recited “idle handoff” to occur. The plurality of base stations and the mobile station represent a fundamental aspect of claim 8, because without them the recited “idle handoff” could not take place. *Id.* at 10:40. Accordingly, the recited “cellular communication system” warrants construction.

#### H. “threshold value”

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
threshold value (claims 8, 10, 12, 13, 14)	single value used in comparison of signal strength difference	Plain and ordinary meaning

Although not directly addressed by CNS in its opening brief, the parties dispute whether the threshold value must be a “single value,” as opposed to multiple values collectively considered the threshold value. While CNS does not dispute the requirement that the threshold value must be “used in comparison of signal strength difference,” CNS nonetheless makes misplaced attacks that Defendants’ construction is “cumbersome” and “nonsensical.” CNS Br., at 12-14. Further, CNS’s invocation of “plain and ordinary meaning” is again unhelpful. *O2 Micro*, 521 F.3d at 1361.

Independent claims 8 and 13 both recite “judging whether the strength difference is greater than a threshold value.” ’551 patent at 10:34-35; 12:4-5. The specification also explains

that the “threshold value” is used in a comparison of a signal strength difference. *See id.* at 1:56-58; 4:42-45; 6:7-9; 7:17-19; 8:41-43; Fig. 1 (element S104); Fig. 3 (element S315); Fig. 4 (element S415); Fig. 5 (element S515). To this extent, CNS does not dispute Defendants’ construction.

CNS asserts that Defendants’ construction “presumably requir[es] that an absolute value is required by the claim.” CNS Br. at 13. This argument misses the point. The question is not whether the “threshold value” in claims 8, 10, 12, 13, and 14 can be “variable,” as CNS argues. *Id.* The question is whether the recited “threshold value” is a single value or can be multiple different values that are arbitrarily lumped together and called collectively a “threshold value.” Each of the thresholds described in the ’551 patent is a single value, including the admitted prior art threshold  $C_{TH}$ , the variable threshold  $V_{TH}(N)$  from Embodiment 1, the threshold  $F_{TH}$  from Embodiment 2, and the threshold  $G_{TH}$  from Embodiment 3. ’551 patent, 1:56-58; 5:11-40; 6:7-9; 7:17-19; 8:41-43. Nowhere does the ’551 patent explain or suggest that a “threshold value” can be two or more distinct values. Defendants’ construction, therefore, is consistent with every embodiment in the specification, and CNS’s assertion that Defendants exclude a “preferred embodiment” is untrue. CNS Br. at 13. Moreover, any suggestion that the “threshold **value**” (singular) can be multiple different “**values**” (plural) is atextual in view of the recitation “threshold value” in claim 8. *See Central Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Solutions, P.C.*, 482 F.3d 1347, 1355 (Fed. Cir. 2007) (“[c]laims mean precisely what they say.”).

CNS’s argument that Defendants’ construction is at odds with the Examiner’s statement of reasons for allowance during original prosecution is misleading. *See id.* at 14. CNS highlights the term “calculated threshold value” in the Examiner’s statement, but neglects to

mention that the claim language being paraphrased by the Examiner—from claim 1—actually recited “calculating a variable threshold.” *Id.* No such limitation is recited in claims 8, 10, 12, 13, and 14. In any event, this statement by the Examiner is consistent with Defendants’ construction. The Examiner did not suggest that multiple distinct values could be considered a “threshold value,” even for unasserted claim 1.

Finally, CNS contends that Defendants’ construction renders the claims “cumbersome at best, and nonsensical at worst.” CNS Br. at 13. CNS does not attempt to explain this criticism. Nowhere does CNS identify any ambiguity in Defendants’ construction or explain how it produces nonsense. To the contrary, CNS’s exercise of inserting Defendants’ construction into claim 8 illustrates how easy it is to understand and apply the construction. *Id.*

**I. “The method as claimed in claim 13, wherein when the state that the strength difference is greater than the threshold value lasts for the predetermined time interval in step (E), step (F) includes performing an idle handoff with respect to the mobile station”**

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
The method as claimed in claim 13, wherein when the state that the strength difference is greater than the threshold value lasts for the predetermined time interval in step (E), step (F) includes performing an idle handoff with respect to the mobile station (claim 14)	Indefinite	Plain and ordinary meaning

Because the Court has granted Defendants’ letter brief requesting permission to file a motion for summary judgment of invalidity based on indefiniteness for this term, *see* Dkt. 78, Defendants address this term in their separate, concurrently filed motion.

**J. “counting performance number of step (E)”**

Claim Term	Defendants’ Proposed Construction	CNS’s Proposed Construction
counting performance number of step (E) (claim 15)	Indefinite	Plain and ordinary meaning

Because the Court has granted Defendants’ letter brief requesting permission to file a motion for summary judgment of invalidity based on indefiniteness for this term, *see id.*, Defendants address this term in their separate, concurrently filed motion.

**III. CONCLUSION**

For the reasons above, Defendants respectfully ask the Court to adopt their proposed constructions because they are consistent with the intrinsic evidence and follow the Federal Circuit’s instructions on construing claims. CNS’s proposed constructions, by contrast, ignore the intrinsic evidence and the applicable law.

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Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the above and foregoing document has been served on all counsel of record via the Court's ECF system on October 15, 2013.

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